

FIGURE 1

Alignment of Biotin Synthase Proteins from Barley (SID18), Corn (SID 20-24), Prickly Poppy (SID 28), Soybean (SID 28 and 30), and Wheat (SID 32)

SID18	-AVSP--SAAAAPFRPALLAE--	PAMMILLIARSLSRVRSPFASAVSAAPFSSVSSAAAEEAERA	RAVRDGPNDWTRP
MA-	MA-----	LMILLARNLRSRLRPLAA-----	AAAEEAERAIRDGPNDWSRP
SID20	MA-----	LMILLARNLRSRLRPLAA-----	AAAEEAERAIRDGPNDWSRP
MA-	MA-----	LMILLARNLRSRLRPLAA-----	AAAEEAERAIRDGPNDWSRP
SID22	MA-----	LMILLARNLRSRLRPLAA-----	AAAEEAERAIRDGPNDWSRP
SID24	MA-----	LMILLARNLRSRLRPLAA-----	AAAEEAERAIRDGPNDWSRP
SID26	-MLKVQL--RAR	LRPLIFIS-----	TFSLSLSSSSSAAAQAERTIKEGPNDWSRD
TKPNPKHRYRCCLLSILSCLYSQISHSFSVVSLPNFEFESKNMFLARPIFRA--PSLWALHSSAYSSASAAAQ	T-----	GLQASCYSSLASAASAEAAERTIREGPNDWSRD	RNNWIRE
SID28	TKPNPKHRYRCCLLSILSCLYSQISHSFSVVSLPNFEFESKNMFLARPIFRA--PSLWALHSSAYSSASAAAQ	-----	RNNWIRE
SID32	T-----	LRPSV-SG-----	DEFSHSWTKS
17054 63	MMLVRSVFRSQ-----	SVRQLQVQKSRYNGTVSSVPPQATESTSSTSPSKDQYQEALNATE-PRSNWIRE	RNNWIRE
SID30	MAT-----	SVRQLQVQKSRYNGTVSSVPPQATESTSSTSPSKDQYQEALNATE-PRSNWIRE	RNNWIRE
29953 63	M-----	RTIRQQIRRSSALSLLV-----	DEFSHSWTKS
6321725	M-----	MSTIYRHLSSTA-RPALTQYATNAA-----	DEFSHSWTKS

SID18	EIQAIYDSPILLFHGAAQVHRNVHKPREVQQCTLLSIKTGGCSEDCSYCPQSRSRYSTGLKAQEKLMMKKDAVLEAAKKAKEAGSTRCFMGA
SID20	EIQAVYDSPILLFHGAAQVHRNVHKPREVQQCTLLSIKTGGCSEDCSYCPQSRSRYSTGLKAQEKLMMKKDAVLEAAKKAKEAGSTRCFMGA
SID22	EIQAVYDSPILLFHGAAQVHRNVHKPREVQQCTLLSIKTGGCSEDCSYCPQSRSRYSTGLKAQEKLMMKKDAVLEAAKKAKEAGSTRCFMGA
SID24	EIQAVYDSPILLFHGAAQVHRNVHKPREVQQCTLLSIKTGGCSEDCSYCPQSRSRYSTGLKAQEKLMMKKDAVLEAAKKAKEAGSTRCFMGA
SID26	EIKSVYDSPVLDLFLHAAQVHRRAHNPREVQQCTLLSVTKGCGSEDCSYCPQSRSRYSTDTGVKAQLMNKDAVLQAAEKAKEAGSTRFCMGA
SID28	QVKSIVDSPILLFHGAAQVHRRAHNPREVQQCTLLSIKTGGCSEDCSYCPQSRSRYSTDTGVGQRLMNKEAVLQAAKAKEAGSTRFCMGA
SID32	- - - - - RDAVLEAAKKAKEAGSTRFCMGA
1705463	EIKSVYDSPILLFHGAAQVHRHVHNPREVQQCTLLSIKTGGCSEDCSYCPQSRSRYSTGVKAQRLMSKDVIDAAKKAKEAGSTRFCMGA
SID30	EIKAIYDRPLMELCWAGSLHRKFH1PGA10MCTLLNIKTGGCSEDCSYCAQSRSRYSTGLKASKMVSVESVLAARIAKDNGSTRFCMGA
2995363	EIQKJYDPLIDLIFRAAS1IHRKFHDPKVVOQCTLLSIKTGGCTEDCKYCAQSRSRYSTNTGVKATKLMK1DEVLEKAKIAKARGSTRFCMGS
6321725	QIKEYHTB1JETTHAOLOHRKWHDPTKVOLCTIMN1KS5GGCSEDCSYCAQSRSRNDTGIKAKEKMVKVDEVIKFAEEAKRNGSTRFCI-GA

FIGURE 1 (page 2 of 2)

SID18	AWRETIGRKTNFNOQILEYVKDIRGMGMEVCCTLGMLEKQQAEELKKAGLTAYNHNLDTSEYYPNILISTRSYDDRLQTLQHVRREAGISVC
SID20	AWRETIGRKSNFNQILEYVKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSEYYPNILISTRSYDDRLQTLQHVRREAGISIC
SID22	AWRETIGRKSNFNQILEYVKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSEYYPNILISTRSYDDRLQTLQHVRREAGISIC
SID24	AWRETIGRKTNFKQILEYVKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSEYYPNILISTRSYDDRLQTLQHVRREAGISIC
SID26	AWRDTIGRKTNFKQILEYVKEIRDMGMVEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSEYYPNILISTRSYDDRLQTLQHVRREAGINVNC
SID28	AWRDTIGRKTNFKQILEYVKEIRDMGMVEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSEYYPNILISTRSYDDRLQTLQHVRREAGINVNC
SID32	AWRETIGRKTNFNQILEYVKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSEYYPNILISTRSYDDRLQTLQHVRREAGISVC
1705463	AWRDTIGRKTNFSQILEYIKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSEYYPNILISTRSYDDRLQTLQHVRREAGINVNC
SID30	AWRDMRGRKTNLKNVKTMVSEIRGMGMEVCVTGMIDAEQAQELKEAGLTAYNHNVDTSDFYPKVITRTYDERDLTICKNREAGINVNC
2995363	AWRDLINGRNRTFKNILEIKEVRSMDMEVCVTGMINEQOAKELKDAGLTAYNHNLDTSEYYSKILLISTRTYDERLNTIDNLRKAGLKVC
6321725	AWRDMKGKRSAMKRIQEMVTKVNDMGLETCVTGMVDQDQAKOLKDAGLTAYNHNLDTSEHYSKVITRTYDDRLQTIKVNQESGIKAC
SID18	SGIIGLGGEAEDRVGLLHTLATLPLTHPESVPINALVAVKGTPQD--QKP---VEIWEMIRMIASARIIVMPKAMVRLSAGRVRFSMPE
SID20	SGIIGLGGEAEDRVGLLHTLATLPLTHPESVPINALVAVKGTPLED--QKP---VEIWEMIRMIATARTMPKAMVRLSAGRVRFSMPE
SID22	SGIIGLGGEAEDRVGLLHTLATLPLTHPESVPINALVAVKGTPLED--QKP---VEIWEMIRMIATARTMPKAMVRLSAGRVRFSMPE
SID24	SGIIGLGGEAEDRVGLLHTLATLPLTHPESVPINALVAVKGTPLED--QKP---VEIWEMIRMIATARTMPKAMVRLSAGRVRFSMPE
SID26	SGIIGLGGEAEDRVGLLHTLATLPLTHPESVPINALVAVKGTPLED--QKP---VEIWEMIRMIATARIIVMPKAMVRLSAGRVRFSMSE
SID28	SGIIGLGGEAEDRVGLLHTLSTLPLTHPESVPINALVAVKGTPLED--QKP---VEIWEMIRMIATARIIVMPKAMVRLSAGRVRFSMPE
SID32	SGIIGLGGEAEDRVGLLHTLATLPLTHPESVPINALVAVKGTPQD--QKP---VEIWEMIRMIASARIIVMPKAMVRLSAGRVRFSMPE
1705463	SGIIGLGGEAEDRIGLHTLATLPLSHPESVPINALVAVKGTPLED--QKP---VEIWEMIRMIGTARIIVMPKAMVRLSAGRVRFSMSE
SID30	TGILGLGENKSDHIGLETVATLPSHPEFPVNMLVAIKGTPLEG--NKK---VEFENMRMVATARIVMPKTIIVRLAAGRGELESEQ
2995363	SGIIGLGGEKHDRVGLIHSLATMPTHPESVPFNLLVPIGTPVGDAVKER---LPIHPFLRSIATARICMPKTIIRFAAGRNTCSESE
6321725	TGGTGGESEDDHIGFIYTLSNMSPHESLPINRLLVAIKGTPMAEELLADPKSSKLQFDEIRLTIATARIIVMPKAIIRLAAGRYTMKETE
SID18	QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP----NFGDEATVASSTE--RCEQ--AASM
SID20	QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP----SFGEEEASAAPTESERSEQ--AASM
SID22	QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP----SFGEEEVSAAAPAESERSEQ--AASM
SID24	QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP----SFGEEEASAAPTESERSEQ--AASM
SID26	QALCFLAGANSIFTGEKLLTTPNNDFDADQMMFKILGLIPKAP----NFQOTS----TSFEAERCEQEATAS-
SID28	QALCFLAGANSIFTGEKLLTTPNNDFDADQLMFKVLGLLIPKAP----SLHEGE---TSVTEDY--KEAASSS
SID32	QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP----NFGDEEVMAAPTE--RCEQ--AALM
1705463	QALCFLAGANSIFTGEKLLTTPNNDFDADQLMFKTLGLIPKPP----SFSEDD----S--ESENCEKVASASH
SID30	QVLCFMAGANAVFTGETMLTTPAVGWGVDSVFNWRGLRPMESFEVFAALKNDKPATTNTTEIPVEASKAEMPGBTVA
2995363	QALAFMAGANAVFTGEKMLTTPAWSWDSDSQLFYNWGLEMQSFSEYGT----STEGEDGTFTLPPKERLAPSPL
6321725	QFVCFMAGCNSIFTGKRMLTTCNGWDEDKAMLAKWGLQPMEAFKYD-----RS

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FIGURE 2: Clone cdt2c.pk002.c17 Contains a 99 Nucleotide Deletion

SID19 CGACTGGAGCCGGCCCGAGATCCAGGCCGTCTACGACTCACCGTCTCGACCTCCTCTT
SID21 CGACTGGAGCCGGCCCGAGATCCAGGCCGTCTACGACTCACCGTCTCGACCTCCTCTT

SID19 TCACGGGGCTCAG
SID21 TCACGGGGCTCAGGTCCACAGAAATTCAAGAAGTGCAGCAATGCACACT

SID19 -----TCATCAAG
SID21 TCTTCAATCAAGACTGGTGGATGCAGTGAAAGATTGTTTACTGCTCATCAAG

SID19 ATACAACACTGGATTGAAGGCCAAAAATTGATGAACAAATAATGGTGTCTGGAAAGCAGC
SID21 ATACAACACTGGATTGAAGGCCAAAAATTGATGAACAAAGATGGTGTCTGGAAAGCAGC